Transportation Plan

Multimodal System

This Transportation Plan is designed to achieve a balanced reliance on multiple transportation modes: single-occupant vehicles, multi-occupant vehicles, public transit, bicycling and walking. This balance will enable the Flagstaff metropolitan area to attain high levels of mobility and accessibility while preserving community character and quality of life.

Achieving a modally balanced transportation system rests on two general strategies:

- first, that investments be made in public transit, bicycling and walking systems to a greater extent than in the past (balancing the historic emphasis on investments in roadway capacity); and
- second, that the design of roadway projects take into account the circulation and safety needs of all modes (recognizing that the road network is the principal infrastructure, not just for private motor vehicles, but for all modes).

In addition to these programs, the city and county, working with the state and with private developers, will make targeted improvements in the roads and streets network. These are described in the Roadway System Plan section below.

This plan is designed to support the Comprehensive Plan of the City of Flagstaff and Coconino County, including the Land Use Plan and desired land development pattern. Consequently, the Transportation Plan targets resources and investments in a manner intended to support a compact, efficient urban form while at the same time protecting and enhancing existing neighborhoods and commercial areas.

Roadway System Plan

Planned Roadway Improvements

The following roadway projects and programs are included in the Transportation Plan. Certain other projects were considered in the planning process and, in some cases, were modeled but are not included in the plan because the analysis indicated they would contribute little value to the system. Some projects will eventually be needed, but are not planned within the 2020 planning horizon; these are indicated in the list below.

Arizona Department of Transportation (ADOT) Projects

Projects included in the plan are:

- widen I-40 from I-17 to Country Club
- widen I-17 from Kachina Village to I-40
- reconfigure/reconstruct the interchange at Country Club and I-40

The reconfiguration of the Country Club interchange provides the most significant local benefit and its advancement by ADOT will be supported by the city and county. The over-widening of I-40 (beyond 6 lanes) is unwarranted and not recommended by this plan.

Developer-funded Projects Within the 2020 Horizon

Projects included in the plan are:

- extend J.W. Powell from Lake Mary Road to new Lone Tree Road
- extend University Avenue to Woody Mountain Road
- extend Woody Mountain Road to Beulah Boulevard
- extend 4th Street through Canyon del Rio

The city and county will require these projects to be built as development occurs, but will not provoke premature, leapfrog development in outlying areas by advancing or encouraging these projects before they are needed.

Developer-funded Projects Outside the 2020 Horizon

Projects which will someday be needed, but which are not included in this plan include:

- extend J.W. Powell from new Lone Tree to 4th Street
- extend Butler Avenue east to Old Walnut Canyon Road

Local/Private/ADOT Joint Projects

Projects included in the plan are:

- build the Lone Tree Interchange with I-40
- extend "new" Lone Tree to J. W. Powell

The Lone Tree Interchange with I-40 coupled to the extension of "new" Lone Tree to J. W. Powell provides a critical linkage for the fastest growing travel market in the region—trips from south of I-40 into the core. The Lone Tree corridor will provide significant relief to Milton Road, San Francisco Street, Beaver Street and other streets in and around the University. Finally, this project will add a new north-south arterial in the core area, which is needed. Care will be taken to manage access to the new roadway and to ensure that development in the corridor and especially around the interchange is consistent with the Land Use Plan and is well-designed. This project is linked with the "Tank Farm" grade separation in the next category.

Locally-funded Projects Within the 2020 Horizon

Projects included in this Plan fall into five categories:

1. Railroad separations providing needed connections between the principal east-west corridors and improving continuity of the north-south arterial system:
   - build 4th Street separation structure over the railroad, connecting into Route 66
   - build Enterprise separation structure over the railroad, connecting into Route 66
   - build Tank Farm separation structure over the railroad, connecting into Route 66
2. Simple connections and extensions designed to eliminate missing links in the roadway grid:
   - extend Soliere Avenue west to 4th Street
   - extend Beulah Boulevard north to Yale Street
   - extend University Drive (stub) west to Beulah Boulevard
3. Intersection improvements providing "wide nodes" in a heavily-traveled street system:
   - provide Route 66 westbound right turn to 4th Street northbound
   - reconfigure/reconstruct intersection of Steves Boulevard and Lakin Drive

4. Projects which solve an important neighborhood issue:
   - provide traffic calming on Lockett Road
5. Projects which provide a significant system-wide benefit:
   - implement a connected, coordinated computer-controlled traffic signal system
   - implement an access management system cooperatively with Arizona DOT

Locally-funded Projects Outside the 2020 Horizon

Projects which will someday be needed, but which are not included in this plan include:
- extend J.W. Powell east from airport to Lake Mary Road
- build Rain Valley Road

Evaluation of Planned Roadway Network

Daily VMT (vehicle miles of travel)—the number of daily vehicle trips times the average trip length—is expected to grow about 82% by 2020. Both the roadway projects and the other modal programs combined with the roadway projects would reduce VMT in 2020 somewhat. This is an important characteristic of the proposed plan.

It is common for roadway improvement programs to increase daily VMT because they increase circuitous travel on new beltways and suburban roadways. However, this plan, which focuses roadway improvements in the core areas, will not have that effect. The average vehicle trip length in 2020 would be expected to be about 14% longer than today due to growth and land development patterns. Implementing the roadway projects will reduce this slightly by pulling trips onto core roadways (e.g., the new Tank Farm overpass). At the same time, implementing the full transportation plan (all modes) will increase average vehicle trip lengths slightly because most of the trips shifted to walking and bicycling are short, leaving the longer trips for driving and public transit. So, average person trip length will remain about the same, but average vehicle trip length will increase.

If this Transportation Plan were not implemented, the extent of congested roadways in the Flagstaff region would increase markedly by 2020. Level of service F (stop and go in peak hours, with long delay at traffic signals) conditions would prevail on nearly 20 miles of roads, up from only about 3 miles in 1997.

Roadway System Plan

The Roadways System Plan illustrates existing and future significant street facilities and projects that establish the region's roadway circulation network. The projects identified improve access and mobility by improving access to alternate east-west routes, reducing the impact of rail traffic on circulation, and establishing new parallel or alternate routes in some areas.

Traffic congestion has been gradually increasing in the Flagstaff region over the past decade. It is particularly noticeable at the entrances to the city at the intersections of Ft. Valley Road and Columbus Avenue, Lake Mary Road and Beulah Boulevard, and US Highway 89 and Country Club Drive. Congestion is also growing at major internal intersections like Route 66 and Enterprise, Route 66 and Butler, and Milton Road and West Route 66. Congestion is expected to increase in the Flagstaff area, and the transportation improvements depicted are intended to manage congestion, not eliminate it. Congestion management efforts include improving the region's network of arterial and collectors to provide better alternate routes, synchronizing traffic

signals and controlling access to major roadways to maximize the efficiency of existing streets, and emphasizing alternate modes of travel to reduce demand for roadways.

The roadway classifications shown on the plan include freeways, arterials and major collectors. "Freeways" are the interstates, I-40 and I-17. These are high-speed facilities with access permitted only at traffic interchanges. "Arterials" are high-capacity or relatively high-capacity roadways that connect the region to the state or enable travel across the region. "Major collectors" are those roadways that gather traffic in a district from the local residential and minor collector streets serving the neighborhoods and deliver it to the arterial system.

Future planned or potential grade separations are also shown on the plan. These are the I-40 traffic interchanges planned for Lone Tree Road and a grade separated intersection with Route 66 and Enterprise Drive that would be associated with a future railroad overpass project at Enterprise Drive.

The roadway classification guides decisions about the design of facilities, access to them, traffic calming, and landscaping. Implementation of a plan strategy will result in additional levels of classification.

The planned street improvement projects are numbered and categorized according to the agency or entity responsible for their construction. Arizona Department of Transportation (ADOT) projects correspond with proposed improvements in the ADOT I-40 Corridor Profile and I-17/US89 Corridor Profile. They will be programmed at ADOT's discretion. Locally funded projects will require new revenues that may include bonded indebtedness, sales taxes, and impact fees. Other road improvements may take place through special assessment districts in the county. It is anticipated that developer-funded projects will be built by the private sector as development takes place.

The map also identifies multimodal corridors for the region. These corridors will be targeted for public and private investments in many modes of travel. They create a transportation grid that will enable people to travel around town without the need for automobiles. These corridors could include bike lanes or paths, improved intersection crossings for pedestrians and bicycles, and transit facilities, such as bus pullouts, shelters, and benches. Streets-related policies may be found in the text under the Transportation Plan.

The Railroad Corridor

The mainline railroad corridor (Burlington Northern/Santa Fe) through the core of the urban area represents a major local condition affecting mobility in the Flagstaff. The only separated street crossing of the rail corridor within the core of the area occurs at the point that Milton/Route 66 curves to the east.

Train traffic through the corridor varies between sixty and eighty-five trains per day depending on the season. The trains are getting longer (a national trend) and can be over a mile long. On their way through Flagstaff they may block specific crossings for as little as a minute and a half or as much as three and a half minutes. The trains not only block intersections, but they also affect the timing cycles of traffic signals. It may take five to ten minutes or even more for the effects of a train passing through town to clear up and the flow of traffic to return to "normal."

Generally, rail freight grows in proportion to the national economy, increasing during boom times and shrinking during recessions. Over the next twenty years or so, Flagstaff can expect to see freight traffic grow at a long-term rate of about 1% to 2% annually. While continued consolidations and reorganizations in the rail industry will affect rail traffic in a general way,

these factors are unlikely to affect the amount of train activity through Flagstaff, since this line represents one of the few remaining major east-west cross-country rail corridors.

This corridor is also an important AMTRAK route. Flagstaff is one of a dwindling number of US cities with an active passenger rail station served by intercity rail operations. About 200 passengers a day board AMTRAK in downtown Flagstaff. While the future of AMTRAK as an entity is uncertain, it is likely that the demand for rail passenger service to vacation/recreation destinations will increase over coming decades as the baby boom generation retires. As the National Park Service pursues the "de-automobiling" of the Grand Canyon's south rim, the stage will be set for more people to think of coming to visit by means other than their automobiles, and AMTRAK will be an attractive choice for many of them.

Alternatives for reducing the impact of the rail corridor on mobility in Flagstaff include:

- Build a new mainline freight corridor; reroute through freight traffic out of Flagstaff.
- Lower the grade of the railroad through the downtown area and build structures to carry major streets across.
- Elevate the railroad on structure and berm through downtown area.
- Leave railroad where it is and build grade crossings for two or three major streets.

A study of these alternatives suggests the separted grade crossing to be the most cost-effective and constructable.

Transit System Plan

The Flagstaff Metropolitan Area Transit Plan is based on broadly-stated goals and quantitative objectives derived from the Regional Transportation Plan, and on specific public transit system goals and objectives developed with the Transit Advisory Committee and the Regional Plan Task Force.

The public transit system goals state that public transit should be a genuine choice, financially accountable, a growth management tool, and integrated into a multimodal system.

Specific objectives guiding the Transit Plan include targets for annual boardings, daily person trips, costs per boarding, and net operating ratio (farebox recovery ratio); a description of the future transfer system; and cooperative efforts between Northern Arizona University, the City of Flagstaff, and Coconino County, which operates the system, to provide for expanded transit operations.

Existing service was evaluted in terms of existing operations and in comparison to other peer cities to develop planned transit service changes. Some limitations of the existing system include long circular routes, excessive time between buses and limited service hours. In comparison with the other cities, the Pine Country transit system is operated efficiently; however, because of low ridership, the cost per boarding is high, which in turn leads to a low farebox recovery ratio. The Flagstaff region also offers the lowest level of transit service in terms of bus hours per capita.

Development of a future transit system requires an understanding of which key markets to serve. The markets identified by the plan include current transit patrons, college students, commuters and core area short trips. Four specific service needs are also identified: fast cross-town travel, higher service frequency, core area circulation and an efficient transfer system.

Seven strategies were developed to ensure success of the future system: employee pass program, student pass program, attractive vehicles, convenient bus stops and transfer centers, pedestrian access to the bus system, improved bus circulation, and need for a marketing program.

The planned future transit service will be organized around an express spine route operating along Milton Avenue and Route 66 (between the city's southwest commercial area and the Flagstaff Mall). A core area circulator will connect the hospital, downtown and Northern Arizona University. Finally, local routes will provide service to individual neighborhoods. The local service routes will connect to the spine route and the circulator at timed transfer nodes located in southwest Flagstaff, downtown, midtown and at the Flagstaff Mall.

Other elements of the service plan include extended weekday service, increased Saturday service, the addition of Sunday and holiday service, and increased peak hour service frequencies to 30 minutes.

The Transit Plan will be reviewed biennially (every two years) to determine progress toward achieving goals and objectives. As the Transit Plan calls for service expansions, the success in implementing the service changes must be reviewed. Success will be monitored through specific operational parameters including number of weekday boardings, operating costs per boarding and farebox recovery ratio.

The Transit Systems Plan

The *Transit Systems Plan* depicts future improvements to area transit service. Existing routes are not shown. Current service will be improved, reducing headway from 70 minutes to 30 minutes over the next 3–5 years. The service areas shown on the map will be connected by the improved transit system. Key future improvements include the "spine" route running from the Flagstaff Mall to the vicinity of the Woodlands Village Shopping Center; the downtown circulator extending from the Flagstaff Medical Center through downtown to Northern Arizona University; and improved local service to the residential markets. The service to these local markets will effectively replace today's service and route structure.

Implementation of the plan will improve service to those people who depend on transit, provide viable commuter service for those who choose to utilize it, and generally increase regional mobility. Coordination with the Northern Arizona University transit system will facilitate the implementation of these improvements. Transit policies may be found in the text under the Transportation Plan.

Non-Motorized Systems

A final, critically important element in this multimodal Transportation Plan is the development of good pedestrian and bicycling systems throughout the region, and especially in core areas.

Walking—the "pedestrian mode"—is the foundation of all mobility in the Flagstaff region. In addition to serving as a convenient, inexpensive and healthy means of making short trips, the pedestrian system provides access to transit and to auto parking. Bicycling also serves as basic mobility and as access to other modes.

A major emphasis in the Transportation Plan is placed on improving sidewalks, crosswalks and other walkways with the objective of developing a safe, continuous, well-connected pedestrian system. Much of this will be accomplished through the design standards utilized in the

construction of roads and streets projects and by incorporating well-designed pedestrian facilities into improvement projects. Private developers will make additional improvements to the pedestrian system as part of residential and commercial development projects.

Finally, the city and county will make direct investments where needed to:

- eliminate important missing links (discontinuities) in the pedestrian system;
- provide improved crosswalks at intersections;
- provide grade separations where high traffic volumes discourage pedestrian crossings.

The Flagstaff area enjoys a climate conducive to bicycling for all but a few weeks of the year. The urbanized area also benefits from ready access to a network of recreational trails on the public lands surrounding the city. Over the next 20 years the city and county will work cooperatively to complete the planned FUTS (Flagstaff Urban Trails System) network and to provide on-street bike lanes and signed bike routes so that there is a continuous, connected system of bicycling facilities available to all areas of the region.

Trails and Bikeways

The trails system and the bikeways system are often considered separately. They seem to have different functions, physical layout, and development procedures. However, they are actually planned to be interrelated, overlapping, and complementary in all these features. The systems maps that relate to them are the Flagstaff Urban Trails Systems (FUTS) and the Bikeways. However, the county trails program will consider trails and bikeways together.

Trails

The Flagstaff Urban Trail System (FUTS), begun in 1989, is conceived as a combination recreation and alternative transportation system both within the city and connecting to surrounding national forest areas. (FUTS links typically are not only off-street pathways, but they are also completely separated from and independent of the street system.) Development strategy for FUTS has emphasized linking various parts of the city via primary trail corridors where there is a realistic possibility of acquiring needed right-of-way without condemnation or purchase of developed land at market prices. Use of existing greenbelts is a high priority. About 22 miles of trail are currently completed; approximately 30 miles more are proposed.

Development of FUTS is highly dependent on implementation of the city's Urban Open Spaces Plan, as the FUTS is either implemented through adjacent, private development dedication or public acquisition. In many of the older sections of the city, open space corridors are unavailable or discontinuous. In these locations, the FUTS makes use of roadside pathways that are also considered part of the Bikeways System.

While build-out of the primary system, which links important parts of the city such as arterial roads, is intended to occur via a combination of city funding and development requirements, it will eventually be completed whether or not there is adjacent private development. The secondary FUTS system, which consists mostly of connecting links such as collector roadways, will occur at the pace of development This is particularly significant in the case of trail links through non-city-owned open space areas with little or no projected development.

Proposed Trail Link or System

Principal proposed FUTS and Arizona Trail Loop linkages include the following:

1. A downtown FUTS crossing west of City Hall is to be included with the construction of the proposed Rio de Flag project. It is to include grade separations under Route 66 and the main line tracks of the BNSF Railroad. It is the new link between Wheeler Park and the existing Rio Canyon trail near I-40.
2. The Foxglen trail will provide a link to schools, neighborhoods, and Foxglen Park in the southwest part of the city.
3. The Bow & Arrow trail will provide a link to neighborhoods, schools, parks, the airport complex, and a loop to the University Heights-Tuthill trail.
4. The Cheshire trail will provide a link to neighborhoods, Cheshire Park, the Museum of Northern Arizona, downtown, the FUTS system, and future development.
5. The Rio de Flag alignment through downtown and east will connect the Rio north and the Rio south trail systems through the center of the city. It will also provide continuity between elements of the south side bikeways system and the Route 66 FUTS pathway. It is proposed that this project be constructed in conjunction with the Army Corps of Engineers' Rio de Flag floodplain project and include pathway undercrossings at Beaver Street and Santa Francisco Street. This will be a greenbelt trail fully separated from the nearby street system.
6. The McMillan Mesa trail would connect the Route 66 system with the McMillan system, the US Forest Service trail system, and future development.
7. The US 89/Rio/Old Route 66 east trail link would extend the system into the northeast portion of the city, connecting to the US Forest Service trail system and Walnut Canyon National Monument.
8. The Woody Mountain Road/Sinclair Wash/Flag Ranch Road trail will extend the FUTS system to the western portion of the city, to future development, to the Arboretum, and onto US Forest Service lands.
9. The Railroad Springs trail system will connect the Observatory Mesa trail back to the western part of the city, the Route 66/ Woodland Village system, and US Forest Service lands.
10. The Lake Mary Road to Fisher Point trail system will connect to other trails in the area, future development, and the US Forest Service trail system.
11. The Foxglenn to Fisher Point/Arizona Trail System trail will connect to other area trails, future development, and the US Forest Service trails system.

The Arizona Trail

The Arizona Trail, a cross-state multiple-use trail, will form a loop through Flagstaff when complete. Traveling north-south, the trail now passes Marshall Lake and splits at Fisher Point. The Flagstaff segment will then travel north through the city, utilizing the FUTS system to connect to Buffalo Park and the Forest Service system trails. The alternate route, the Flagstaff Bypass, heads east from Fisher Point past Walnut Canyon, crossing Interstate 40 near Cosnino and will then loop back north, crossing Highway 89 near Elden Pueblo to connect with the existing Forest Service system trails. These two routes will meet at Schultz Pass where the trail will then continue to the Utah border.

Level of Service Standards—City FUTS

Primary trails are now required to have 10 feet of surface width, with at least 2 feet of shoulder on each side. Most existing trails have a specially designed packed aggregate surface. Some links, particularly those that serve as bike paths adjacent to streets, are already asphalt or concrete surfaced. Future links will be asphalt or concrete where use is anticipated to be high or where there are special maintenance concerns.

Connectivity is the single most important criterion in defining desired FUTS trail links. The goal is to link as many trail users, significant residential neighborhoods, commercial districts, schools, parks and USFS trails as possible.

Safety is the other major criterion in defining system deficiencies. Grade crossings or other crossing improvements are proposed so trail users can access surface streets with adequate provision for safe movement. In some cases, existing concrete boxes or grade separation structures will be utilized; in others, new crossings are indicated. Grade separations are indicated wherever a primary link crosses a major highway or railroad at grade. Trail development is also linked to the city's roadway development policy, piggybacking FUTS links and crossings onto already proposed roads and bridges where possible.

Coconino County Future Trail Needs

The Coconino County Parks and Recreation Department has recently created a trails program and will develop a Coconino County Trails and Greenways Plan. This plan will be a cooperative effort between the county and local, state, and federal land managers. The plan will identify trails and greenway corridors, inter-agency trail linkages, and trail user education and volunteer programs.

The county will extend the FUTS system to communities outside the city limits. For example, the Sinclair Wash FUTS Trail now ends within Fort Tuthill County Park. The county intends to extend this trail to Kachina Village and Mountainaire. The Trails Plan will identify other potential trail connections.

Bikeways

City of Flagstaff policy acknowledges the bicycle as a legitimate transportation mode to be accommodated on the public street system. With the exception of the Interstate Highways, every street in the city is considered to be a bicycle street. New private and public street construction is designed to accommodate the cyclist in all new projects. Traffic and parking restrictions have been implemented on many streets to provide bike lanes, and the City Traffic Code has been amended to support cycling, even to the point of allowing bikes on sidewalks. The goal of past planning and development has been to create a physical bikeway system that allows cyclists the opportunity to move safely and conveniently throughout all parts of the community.

There are now marked bike lanes on approximately 21 miles of city streets, mostly arterials and collectors, and there are over 4 miles of streets with adjacent bike paths. The travel mode shift desired by the plan is starting to occur. The existing systems still lack internal connectivity and coverage in many areas, as well as connections between the city and the county. The Regional Land Use and Transportation Plan emphasizes that both a concerted effort to complete missing links in the system and an active promotion of cycling to reduce traffic problems are critical.

In summary, the emphasis of the Regional Plan with respect to bicycling is:

- Effectively utilize cycling to meet local mobility choices and needs.

- Facilitate cycling as a mode other than single occupancy vehicle.
- Actively promote mode shift to cycling.

System Plan and Map

The Bikeways System Plan identifies an interconnected system of on-street bike lanes and off-street multi-use paths adjacent to the streets, which complements the urban trail systems (FUTS). The function of the bikeways system is more utilitarian than the trails system. The bikeways system consists of direct, high-speed connections between trip ends on paved routes on and along streets that interconnect adjacent neighborhoods and commercial districts. When completed as planned, as Bikeways and FUTS systems, they will serve all the cycling needs of the community:

1. Commuters, who need efficient routes between home and other destinations such as work, Northern Arizona University, Coconino Community College, or school.
2. School children, who need safe, direct routes between home and activity centers, schools, or parks.
3. Recreational cyclists, who wish either to ride from home along nearby off-road trails or to directly access the more distant network of regional trails.
4. Short, convenient utility trips that were previously made by walking or driving could be made more easily and efficiently by bicycle.
5. Making the ride to bus stops more convenient will enhance multimodal trips. (Note: The Transit Plan as well as current PCT operations encourage multimodal cycling trips.)

The complete bikeways plan and map is shown on the Regional Bikeway System Plan. The Bikeway System Plan consists of two facility types:

Type I facilities are the Bike Paths. These are non-motorized multi-use paths, parallel to and near streets. Often in the street right-of-way or adjacent easements, they are paved and wide enough to accommodate moderate volumes of mixed bike and pedestrian traffic. They are designed for basic riders and children ('B' and 'C' cyclists) and provide direct connections between distant points and major system nodes while providing lateral separation from vehicular traffic.

Type II facilities are the Bike Lanes. On city streets, these are lanes marked on the pavement and identified by signs and pavement markings for exclusive use by cyclists. On state highways, Type II facilities are roadway segments with either adequate curb lane width so that motorists do not need to veer into the adjacent lane in order to pass a cyclist, or edge lines marking a paved shoulder 4 feet or greater in width. Specific bike signing and pavement markings are not used on the state highways. Type II facilities are intended for the more advanced 'A' cyclists and are the routes most often used for commuting trips.

Bicycle Facilities in the County

The existing and proposed bikeways systems reside primarily within the city. Exceptions are the highways leaving the city—US 89, AZ 89A, US 180 and Lake Mary Road, which have proposed or existing Type II facilities. The Regional Plan's street functional classification definitions for arterial and collector streets provide a structure for the county to use in establishing design standards that encourage alternate modes of travel within and between county areas and the city. Circulation within unincorporated areas in the county is addressed through the area plan process. Linking these areas to the city network is a goal of the Regional Plan.